REMARKS

Reconsideration and allowance of the subject patent application are respectfully requested.

Claims 40 and 41 were rejected under 35 U.S.C. Section 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The illustrative Figure 5 embodiment, for example, shows a 990 ohm resistor as an "incoming call preventing circuit". Further, page 8 of the application describes this resistor as "busying" the exchange side of line 4 "so that incoming calls are not connected through to line 4." Applicant submits that Figure 5 and the accompanying description fully enable the subject matter of claims 40 and 41 and therefore request that the rejection of these claims based on 35 U.S.C. Section 112, first paragraph, be withdrawn.

In view of the above, Applicants submit that the drawings show an example of the incoming call preventing circuit specified in the claims and withdrawal of the objection to the drawings as failing to show this feature is respectfully requested.

With regard to EP 98304101.3, a newly executed declaration is submitted herewith which more clearly specifies that this patent application does not claim priority from EP 98304101.3. Accordingly, withdrawal of the objection to the declaration and of the request for a certified copy are respectfully requested.

Applicant notes that certain amendments have been made to improve the form of the pending claims by, for example, providing for consistent use of "the" when referring to previously recited features. Such amendments are not made for reasons for patentability.

Claims 1-6, 10-16, 29, 30, 32-35 and 38-42 were rejected under 35 U.S.C. Section 103(a) as allegedly being "obvious" over Emerson *et al.* (U.S. Patent No. 5,553,059) in view of Bella *et al.* (U.S. Patent No. 6,212,258) or Charland (U.S. Patent No. 5,550,894). While not acquiescing in this rejection, the independent claims have been amended to describe connecting predetermined circuitry across the communications line at the remote end based on the selection of a characteristic to be measured. As such, the applied references are discussed below with reference to the amended claims.

As discussed in the prior response, Emerson *et al.* discloses a system for determining where errors have occurred in a transmission path. Specifically, the system determines whether there is an error in lines 16 or lines 18 of local loop 14. A loop back test is performed after network interface unit (NIU) 22 enters a loop back mode and the network based test system 32 transmits a serial stream of bits to the NIU 22 over lines 16. Each bit received by the unit 22 is returned via link 30, which is switched into the circuit by the NIU control circuit, and then transmitted over lines 18 back to the test system 32. There the bit sequence is compared to the sequence that was originally transmitted. To distinguish if the error occurred in the forward path from the test system 32 to the NIU 22 over lines 16 or over lines 18, a pattern generator circuit is activated. When the NIU

22 command detector circuit 34 detects a remote pattern generation command sequence on lines 16, the circuit 36 is invoked. The command contains information about which test pattern is to be generated by the unit 22. The requested test pattern is generated by the NIU 22 and transmitted over lines 18 to the test system 32. There the results are analyzed and determination is made if a transmission error occurred. If transmission errors occur in the NIU loop back test and transmission errors also occur in the NIU pattern generation test, the transmission problem is located in the receive direction of local loop 14 on lines 18. If transmission errors occurred in the NIU loop back test and no error occurred in the NIU pattern generation test, then the transmission problem is located in the transmit direction of local loop 14 on lines 16.

Each of claims 1, 10 and 24 calls for switching means to connect predetermined circuitry across a communication line at the other end to enable a selected characteristic of the line to be measured. Claim 29 calls for a sender unit connected to the other end of the communications line which includes a switching circuit that selectively connects at least one measurement-related circuit across the communication line to enable a characteristic of the line to be measured. Emerson *et al.* does not disclose switching predetermined circuitry across a communication line at either end thereof to enable a selected characteristic of the line to be measured as set forth in claims 1, 10, 24 and 29. In addition, Emerson *et al.* does not describe the use of a receiver means connected to a remote end of a communications line and sender means connected to the other end of the communications line. Emerson describes the

use of a network interface unit 22 that transmits data around a loop including two communications lines. Further, Emerson *et al.* does not disclose switching circuitry across the communication line at both the remote end and at the other end. In particular, Emerson *et al.* does not disclose or suggest connecting predetermined circuitry across the communication line at the remote end based on the selection of a characteristic to be measured. Further still, no signal representative of the selective characteristic of the line to be measured is transmitted from the receiver means to the sender means in Emerson *et al.*

The deficiencies of Emerson *et al.* are not remedied by either Bella *et al.* or Charland. Bella *et al.* teaches the use of a network interface device, including a request signal detector that enables a test signal generator to be connected across a communications line. A test signal is transmitted by the test signal generator on the communications line for subsequent analysis. However, the generation of a predetermined test signal for subsequent analysis is quite different from the generation and transmission of a signal representing a selected characteristic of the communication line to be measured. The former is merely a passive signal, whereas the signal generated in the claimed systems and methods acts to control the switching of circuitry in the sender means. In addition, there is no relation to the connecting of the circuitry across a communications line in order to enable a selected one of a plurality of characteristics of the communications line to be measured in response to reception of a signal uniquely representative of that one selected characteristic. Further, Bella *et al.* does not disclose or suggest connecting predetermined

circuitry across the communications line at the remote end based on the selection of one of a plurality of characteristics to be measured. For at least these reasons, even assuming that the combination of Emerson *et al.* and Bella *et al.* were proper, the subject matter of claims 1-6, 10-16, 29, 30, 32-35 and 38-42 would not result.

Charland describes the use of a switch module including a number of switches either connected across the communications line or connected in series with one of the wires in the pair constituting the communication line for simulating various fault conditions on the communications line. The switch module is activated in response to the detection of a trigger signal. Once again though, there is, among other things, no relation to the connecting of circuitry across the communications line in order to enable a selected characteristic of the communication line that is desired to be measured, in response to reception of a signal uniquely representative of that selected characteristic. For at least these reasons, even assuming that the combination of Emerson *et al.* and Charland *et al.* were proper, the subject matter of claims 1-6, 10-16, 29, 30, 32-35 and 38-42 would not result.

Claims 7, 8, 17, 18, 19-28, 31, 36, 37 and 43 were rejected under 35 U.S.C. Section 103(a) as allegedly being "obvious" over Emerson *et al.* in view of Bella *et al.* or Charland, in further view of Barton *et al.* (U.S. Patent No. 5,343,461). Barton discloses a fully duplex digital transmission facility loop back test, diagnostics and maintenance system which is capable of initiating a loop back test and predetermined diagnostics for a particular digital transmission

span and customer premises equipment at a location of a network interface for a particular end user. However, there is no particular disclosure in Barton *et al.* of connecting predetermined circuitry across a communications line to enable a selected one of a plurality of characteristics of the communications line to be ascertained and measured as called for in the rejected claims. Thus, the combination of Barton with Emerson *et al.* and Bella *et al.* or Charland, even if proper, would not have rendered the subject matter of claims 7, 8, 17, 18, 19-28, 31, 36, 37 and 43 obvious.

Claim 9 was rejected under 35 U.S.C. Section 103(a) as allegedly being "obvious" over Emerson *et al.* in view of Bella *et al.* or Charland, in further view of Bass *et al.* (U.S. Patent No. 3,920,975). Bass *et al.* discloses a remote tester control system that provides switching between various modems, one being primary and other being a back up, connected to each remote station 12 and 26. Each modem 20 has an exact duplicate that can be switched to replace it should an operating problem develop therein. A network controller 34 applies command signals to the communications network to affect switching changes at remote data terminal stations 12 and 26. The command signals are applied to the network not only to reconfigure it for operating purposes by switching back over to back-up facilities, but also to place the different network elements into various test modes. There is no disclosure in Bass *et al.* of any predetermined circuitry that is connected across a communications line in order to enable a selected one of a plurality of characteristics of a communications line to be measured. Thus,

the combination of Emerson *et al.* and Bella *et al.* or Charland with Bass *et al.*, even if proper, would not have rendered the subject matter of claim 9 obvious.

New claim 44 is added for the Examiner's consideration. The subject matter of this new claim is fully supported by the original disclosure and no new matter is added. It is respectfully submitted that the applied art does not disclose or suggest receiver or sender units as specified in this claim.

Applicant submits that the pending claims are in condition for allowance, and action to that end is earnestly solicited.

If any issues remain to be resolved, the Examiner is urged to contact the attorney for Applicants at the telephone number listed below.

Respectfully submitted,

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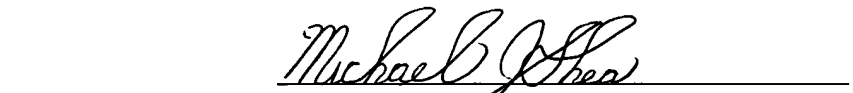

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Version marked to show changes made

Claims 1-29 have been amended as follows:

1. (Twice Amended) Apparatus for remotely measuring characteristics of a communications line comprising:

receiver means for connection to a remote end of the communications line;

sender means for connection to the other end of the communications line;

the [said] receiver means generating a signal in response to a selection of one of a plurality of characteristics of the communications [said] line to be measured and connecting predetermined circuitry across the communications line at the remote end based on the selected characteristic;

the [said] signal uniquely representing the [said] selected characteristic;

the [said] signal being transmitted along the communications line toward the sender means;

the [said] sender means having detection means for detecting the [said] signal, and switching means,

such that on detection of the [said] signal and, on the basis of the unique representation of the signal, the switching means is controlled so as to connect predetermined circuitry across the communications line at the [said] other end to enable the [a] selected characteristic of the communications line to be measured.

2. (Amended) Apparatus as claimed in claim 1 wherein the [said] signal is generated by signal generation means and is assigned a unique code such that the [said] unique code is representative of the [a] characteristic of the communications [the] line to be measured.

3. (Amended) Apparatus as claimed in claim 2 wherein the [said] signal assigned a unique code is represented by a sequence of pulses.

4. (Amended) Apparatus as claimed in claim 1 wherein on detection by the [said] detection means of the [said] signal, the [said] signal is converted into a digital code.

5. (Amended) Apparatus as claimed in claim 4, further comprising processor means for receiving and processing the [said] digital code representing the [said] signal.

6. (Amended) Apparatus as claimed in claim 5 wherein the [said] switching means is controlled by the [said] processor means to connect the [said] predetermined circuitry across the communications line at the other end on the basis of the particular code received and processed by the [said] processor means.

7. (Amended) Apparatus as claimed in claim 1 including selection means for selecting the characteristic to be measured at random wherein upon selection of the characteristic the predetermined circuitry for enabling the measurement of the selected characteristic is directly connected to the communications line at the other end by the [said] switching means.

8. (Amended) Apparatus as claimed in claim 7 wherein the [said] random selection of one of a plurality of characteristics is made by depressing one or more respective buttons on the [said] receiver means.

9. (Amended) Apparatus as claimed in claim 1 wherein the [said] signal is a low frequency signal.

10. (Twice Amended) A method of remotely measuring characteristics of a communications line, comprising [the steps of]:

connecting receiver means to a remote end of the communications line;

connecting sender means to the other end of the communications line;

causing the receiver means to generate a signal in response to a selection of one of a plurality of characteristics of the communications [said] line to be measured, the [said] signal uniquely representing the [said] selected characteristic;

connecting predetermined circuitry across the communications line at the remote end based on the selected characteristic;

transmitting the [said] signal along the communications line toward the sender means; and

detecting the [said] signal through the sender means and, on the basis of the unique representation of the signal, controlling switching means to connect predetermined circuitry across the communications line at the [said] other end to enable the [a] selected characteristic of the communications line to be measured.

11. (Amended) A method as defined in claim 10, further comprising [the step of] assigning a unique code to the [said] signal after being generated at the [said] receiver means such that the [said] unique code is representative of the [a] characteristic of the communications line to be measured.

12. (Amended) A method as claimed in claim 11, further including representing the [said] unique code as a sequence of pulses.

13. (Amended) A method as claimed in claim 10 wherein the [said] detecting [step] is conducted by detection means forming part of the sender means.

14. (Amended) A method as claimed in claim 13 wherein following the detecting [step], the [said] signal is converted into a digital code.

15. (Amended) A method as claimed in claim 14 wherein the controlling [step] is conducted by processor means, the [said] processor means receiving and processing the digital code representing the [said] signal.

16. (Amended) A method as claimed in claim 15 wherein the switching means is controlled by the [said] processor means to connect the [said] predetermined circuitry across the communications line at the other end on the basis of the digital code received and processed by the [said] processor means.

17. (Amended) A method as claimed in claim 10 further comprising depressing one or more respective buttons on the [said] receiver means to enable random selection of one of a plurality of characteristics.

18. (Amended) A method as claimed in claim 10 wherein the [said] selection is performed randomly such that the predetermined circuitry for enabling the measurement of the selected characteristic is directly connected across the communications [to the] line at the other end by the [said] switching means.

19. (Twice Amended) A method of testing a communications line so as to ascertain and measure one or more characteristics of the communications line employing random switching between functions to select the [said] characteristics, the method comprising [the steps of]:

connecting receiver means to a remote end of the communications line;

connecting sender means to the other end of the communications line;

generating a signal in response to the random selection on the [said] receiver means of one of the [said] one or more characteristics, the [said] signal uniquely representing the selected characteristic;

connecting predetermined circuitry across the communications line at the remote end based on the selected characteristic;

transmitting the [said] signal to the [said] sender means along the [said] communications line;

detecting the [said] signal at the [said] sender means; and

connecting predetermined circuitry, on the basis of the [said] unique representation, across the communications line at the [said] other end to enable the selected characteristic to be ascertained and measured.

20. (Amended) A method as claimed in claim 19 wherein the [said] connecting [step] is performed by controlling switching means in response to processing of the [said] signal.

21. (Amended) A method as claimed in claim 19 further comprising depressing one or more buttons on the [said] receiver means corresponding to the selected [a desired] characteristic [to be measured].

22. (Amended) A method as claimed in claim 19 further comprising [the step of] assigning a code to the [said] signal to uniquely represent the selected characteristic.

23. (Amended) A method as claimed in claim 22 wherein the [said] code is represented as a sequence of timed pulses generated at the receiver means.

24. (Twice Amended) Apparatus for testing a communications line so as to ascertain and measure a plurality of characteristics of the line, the [said] apparatus comprising:

receiver means for connection to a remote end of the communications line;

sender means for connection to the other end of the communications line;

selection means enabling the random selection of one of the [said] characteristics;

the [said] receiver means generating a signal in response to the random selection of one of the [said] characteristics and connecting predetermined circuitry across the communications line at the remote end based on the selection;

the [said] signal uniquely representing the selected characteristic and being transmitted along the communications line for receipt by the sender means;

detection means for detecting the [said] transmitted signal;

switching means for connecting predetermined circuitry across the communications line at the [said] other end; and

such that on [one] detection by the [said] detection means of the [said] transmitted signal, the [said] switching means connects the [said] predetermined circuitry to enable the selected characteristic to be ascertained and measured.

25. (Amended) Apparatus as claimed in claim 24 wherein the [said] signal is generated by signal generating means and is assigned a code.

26. (Amended) Apparatus as claimed in claim 25 wherein the [said] code is transmitted as a sequence of timed pulses from the signal generating means to the detection means.

27. (Amended) Apparatus as claimed in claim 25 further comprising processing means for receiving and processing the [said] code and controlling the [said] switching means to connect the predetermined circuitry across the communications line at the other end on the basis of the code.

28. (Amended) Apparatus as claimed in claim 24 wherein the [said] selection means comprises a plurality of function buttons corresponding to the [said] plurality of characteristics, whereby a characteristic to be measured is

selected by depressing one or more respective function buttons on the [said] receiver means corresponding to the characteristic.

29. (Amended) Apparatus for remotely measuring characteristics of a communications line, comprising:

a receiver unit connected to one end of the communications line, the [said] receiver unit including a signal generator for generating a signal uniquely representing a characteristic of the communications line to be measured, [and] a signal transmitter for transmitting the generated signal, and predetermined circuitry that is selectively connected across the communications line at the remote end based on the characteristic to be measured; and

a sender unit connected to another end of the communication line, the [said] sender unit including a signal detector that detects the signal transmitted from the receiver unit, measurement-related circuits, and a switching circuit controlled in accordance with the detected signal to selectively connect at least one of the measurement circuits across the communications line to enable the characteristic of the communications line to be measured.

33. (Twice Amended) Apparatus as claimed in claim 29, wherein the predetermined circuitry of the receiver unit [further] comprises:

measurement-related circuits; and the receiver unit further comprises:

a switching circuit for connecting at least one of the measurement-related circuits across the communication line.

34. (Amended) Apparatus as claimed in claim 1, wherein the communications line is a single line pair and the predetermined circuitry at the other end is connected between the two lines of the single line pair.

35. (Amended) The method as claimed in claim 10, wherein the communications line is a single line pair and the predetermined circuitry at the other end is connected between the two lines of the single line pair.

36. (Amended) The method as claimed in claim 19, wherein the communications line is a single line pair and the predetermined circuitry at the other end is connected between the two lines of the single line pair.

37. (Amended) Apparatus as claimed in claim 24, wherein the communications line is a single line pair and the predetermined circuitry at the other end is connected between the two lines of the single line pair.